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| 10/597,343 | 07/20/2006 | **Tadahiro Ohmi** | SUG10166 | 9535 |

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| EXAMINER | |
|---|---|
| MCCALISTER, WILLIAM M | |
| ART UNIT | PAPER NUMBER |
| 3753 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/597,343 | OHMI ET AL. | |
| | Examiner | Art Unit | |
| | WILLIAM MCCALISTER | 3753 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *10/15/2008 (response to restriction)*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) *4-7,13 and 14* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3, 8-12 and 15-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 July 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/20/06, 9/11/06, 10/15/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of Group I, in the reply filed on 10/15/2008 is acknowledged. The traversal is on the ground(s) that the claims of Group II have been amended such that Groups I and II now have unity of invention (the claims of Group II were amended to depend from a claim of Group I). This is found persuasive regarding the requirement for election between Groups I and II, and the requirement for election therebetween is withdrawn.

2. Groups I and II continue to lack unity of invention with Groups III, IV, and V, for the reasons set forth in the preceding office action. These aspects of the requirement for election were not addressed in Applicant's reply of 10/15/2008. The non-election of Group III, IV or V is therefore considered to be an election without traverse (see MPEP 818.03(a)). This aspect of the requirement is still deemed proper and is therefore made FINAL.

3. Claims 4-7, 13, and 14 (of Groups III, IV and V) are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

4. Applicant's election with traverse of species A in the reply filed on 10/15/2008 is acknowledged. The traversal is on the ground(s) that there is unity of invention between species A and species B. In support of this contention, Applicant persuasively

argues the existence of a special technical feature. The requirement for election between species A and species B is therefore withdrawn.

5. Currently claims 1-3, 8-12 and 15-17 are pending for immediate consideration.

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. It is not understood what is required of “an inner capacity of the valve". Does this refer to the diaphragm chamber?

3. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. It is unclear what is to occur "before the valve is made to open." Is it: the existence of “the first period of time”, the pressure change used to determine "the pressure rise value", the existence of "a first pressure value”, or some combination of these?

4. Claims 8-12 and 15-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 8 and 9 do not clearly describe the step operating pressure (Ps') so that it can be determined whether the claimed invention meets all the criteria for patentability, whether the specification meets the criteria of 35 U.S.C. 112, first paragraph with respect to the claimed invention, and so that the public would be informed of the boundaries of what constitutes infringement of the issuing patent.

The claims say that "Ps' ... is determined... so that the actuator type operating valve is made to open based on control signal Sc...". However, the claim does not clearly recite a link between Ps' and Sc, and it is therefore unclear whether the claim requires that Ps' be used to manipulate signal Sc. (Figure 15 shows that Ps' functions as an upper bound on Pa1, where Pa1 is determined by Sc, and thereby implies that Ps' is used to derive Sc.)

Operation of the system appears to be fully described without the need for Ps', that is: a vibration signal (Pr) is sent to a tuning box, which sends a control signal (Sc) to an I-P converter, which sends a pressure signal (Pa, consisting of a first and second pressure signal) to a valve actuator, which actuates the valve, which affects the vibration signal (Pr). Therefore no function of Ps' can be implied from missing operational characteristics of the system.

### *Double Patenting*

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory

obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1 and 2 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 7,080,658 in view of Burns (5,970,430). Although the conflicting claims are not identical, they are not patentably distinct from each other. The '658 patent claims a structure which, during its normal and usual operation, would perform the method claimed with exception to the characteristics specific to opening, rather than closing, the valve. However, Burns teaches that it was know in the art at the time of invention to use such a diagnostic method while opening a valve, and diaphragm-actuated valves were well known in the art at the time of invention. It would have been obvious to one of ordinary skill in the art at the time of invention to use the device claimed by the '658 patent to diagnose the opening of a diaphragm-actuated valve.

7. Claims 1-3, 8 and 10-12 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 4-7 of U.S. Patent No.

7,278,437 in view of Burns. Although the conflicting claims are not identical, they are not patentably distinct from each other. The '437 patent claims a method which is substantially the same, with exception to opening, rather than closing, the valve. However, Burns teaches that it was know in the art at the time of invention to use such a diagnostic method while opening a valve, and diaphragm-actuated valves were well known in the art at the time of invention. It would have been obvious to one of ordinary skill in the art at the time of invention to perform the method claimed by the '437 patent to diagnose the opening of a diaphragm-actuated valve.

8. Claims 1-3, 9 and 15-17 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 2-5 of U.S. Patent No. 7,278,437 in view of Burns. Although the conflicting claims are not identical, they are not patentably distinct from each other. The '437 patent claims a method which is substantially the same, with exception to opening, rather than closing, the valve. However, Burns teaches that it was know in the art at the time of invention to use such a diagnostic method while opening a valve, and diaphragm-actuated valves were well known in the art at the time of invention. It would have been obvious to one of ordinary skill in the art at the time of invention to perform the method claimed by the '437 patent to diagnose the opening of a diaphragm-actuated valve.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Burns.

Regarding cliam 1, Burns discloses a method for water hammerless opening of a fluid passage, comprising the steps of:

(a) providing a fluid passage (inherently connected to valve 109) openable by operation of an actuator operating type valve (109) provided on the fluid passage of a pipe passage, wherein the fluid passage has a nearly constant pressure inside the pipe passage (when the valve is closed, for example);

(b) moving a valve body (inherent to every valve) of the actuator operating type valve toward a direction of valve opening by increasing or decreasing driving input to an actuator of the actuator operating type valve (see col. 28 lines 9-23, for instance the “ten step" process), wherein the driving input is increased or reduced to a first prescribed set value (that which corresponds to the step size);

(c) holding the driving input to the actuator at the first set value for a first period of time (the time between steps); and then

(d) further increasing or decreasing the driving input to move the valve body to a state of full valve opening (see col. 28 lines 9-12) so the fluid passage is opened without causing a water hammer.

Regarding claim 2 as best understood, Burns the valve to be a normally closed (the waveforms are used to open the valve), and a pneumatic pressure operated type (col. 18 lines 1-5) diaphragm valve (col. 29 lines 28-45), wherein each of these diaphragm valves is of a fixed capacity type wherein an inner capacity of the valve is not changed when the valve is operated.

### *Claim Rejections - 35 USC § 103*

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burns.

Regarding claim 3 as best understood, Burns discloses a pressure rise value of the fluid passage is made to be within 10% of a first pressure value before the valve is made to open (which is proportional to the step size of, for example 1%, see col. 28 line 11). Burns also discloses the first period of time to be dependent on the size and response time of the valve and actuator (col. 30, lines 11-15), and that the method can be performed on many sizes and types of valves and actuators (col. 29, lines 28-45). It would have been obvious to one of ordinary skill in the art at the time of invention to perform Burns' method on a valve and actuator having a short response time, such that the first period of time is less than 1 second, in order to diagnose the operational characteristics of such a valve and actuator

***Allowable Subject Matter***

15. Claims 8-12 and 15-17 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

16. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to teach the step of comparing a vibration signal to a two-step actuator pressure signal in combination with the other recited steps and structure.

***Conclusion***

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM MCCALISTER whose telephone number is (571)270-1869. The examiner can normally be reached on Monday through Friday, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Huson can be reached on 571-272-4887. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/WILLIAM MCCALISTER/
Examiner, Art Unit 3753

/John Rivell/
Primary Examiner, Art Unit 3753

WM
12/15/2008